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BOILERS UNDER FORCED AND INDUCED DRAUGHT.

At a recent meeting of the Institute of Marine Engineers, held at Stratford, England, a paper was contributed by Mr. J. H. Silley on "the treatment of boilers under forced and induced draught." In the course of his paper Mr. Silley said that as forced and induced draught boilers were now being largely adopted by shipowners, the number of ships which arrived in port with boilers out of order was sufficient excuse for bringing the subject before the members of the institute. Many of the accidents to boilers were due to the following causes:—1, by the carrying of excessive air pressure; 2, by allowing the fire bars to become bare, and allowing a rush of cold air to strike the heated plates; 3, the bulging of combustion chamber backs through the bridges getting knocked down and allowing the fierce heat to strike the back of the combustion chamber, and having no means to baffle it; 4, by the wedging in of the fire bars, the bars expanding more than the furnace, and thereby forcing the sides of the furnace out. Undoubtedly one of the first questions that arose when a ship arrived in port with forced draught boilers damaged was that of air pressure. In several of the boilers that he had heard of, this appeared to be due to excessive air pressures. What air pressure then should be carried with safety under different conditions? While a light scale $\frac{1}{16}$ inch thick would do no damage in an ordinary draught boiler other than impair its efficiency, it was quite possible that the same boiler would be easily damaged under forced draught by excessive air pressure, and as boilers in many cases had to work continually from two to three months without any inside examination, there was always the possibility of a certain amount of scale forming, due to unavoidable causes. It therefore behoved every engineer in charge of this class of boiler to pay very careful attention to air pressure, as any excessive pressure, though only temporary, might do serious damage. Different methods had been adopted to prevent damage occurring, but some of these only assisted the evil. In some cases, the practice of locking the stop valve was adopted. One engineer had informed him that he set the air pressure at 3 inches on leaving London, and took the wheel off the stop valve to prevent anyone tampering with it, the fan not being touched for weeks together. The author considered this a great mistake, for immediately it was required to check the draught the fireman had to rely on shutting, say, half the number of air valves, thus setting up an air pressure of possibly 5 inches to 6 inches in the other furnaces, which was the very thing that should be avoided. He considered that, to get satisfactory and economical results, the fan must be under the perfect control of the engineer on watch so as to ensure the air pressure being kept perfectly steady. He thought he was right in saying that a less quantity of air was required when working with forced draught than with ordinary draught, owing to the air being properly distributed. The air being heated not only saved so much heat that would be otherwise lost, but also allowed a more facile and rapid union of the oxygen of the air with the gaseous products and carbon of the fuel. Taking the theoretical quantity of air required to burn one of coal at 12 lbs., in ordinary practice with natural draught, 24 lbs., he did not think they would be far out if they assumed 18 lbs. of air to each pound of coal with forced draught. Great loss must necessarily arise from any excess of air pressure. The supply should be restricted to the minimum amount which was consistent with perfect combustion. Any excess of air in the first place reduced the temperature within the furnace and diminished the rate of conduction through the heating surface, and also augmented the bulk of the gaseous products of combustion, and thus made it more difficult for the heating surface to reduce the temperature of the products. When they considered that, in addition to the risk of damage to boilers, possibly 10 to 15 per cent. of coal might be wasted owing to want of attention on watch, they would agree that some means were required to prevent this occurring. To ensure careful attention to the air pressure at all times, the author fitted to the steamship Star of New Zealand an automatic air pressure alarm, which could be regulated to suit any desired pressure, and would give warning by electric bell immediately the required air pressure was exceeded. As a protection against excessive air pressure, some steamers were being fitted with automatic relief valve, which worked similar to a flap valve; but the author considered that there were several reasons against its adoption. It had been suggested to him that a governor should be fitted to the fan engine, to regulate the speed of the fan, or to slow it down if the required air pressure was exceeded. This might appear all right in theory, but he was afraid it would not work very well in practice. In reference to the damage to boilers due to cold air striking the heated plates, he did not think this was liable to do much damage in Howden's system owing to the air being heated to a temperature of about 240 degs. Fahr. before entering the furnaces, but it was undoubtedly very dangerous in some systems of forced and induced draught. In conclusion, he might say that after several years with Howden's forced draught, he was a strong advocate of the system (in preference to natural draught), and felt sure that with careful management the greatest economy was assured, besides greater comfort for all concerned.

NEW YORK STATE CANALS.

The canals of the state will open between April 15 and May 1, and as near the former date as possible. The State Department of Public Works is taking every precaution to avoid delay in opening by reason of the incompleteness of improvement work or possible breaks.

A delay was occasioned in the opening of the Champlain canal last year by a break at Wilbur's Basin, and the department is profiting by that experience. The New York Central railroad has been notified by the department that it must hurry work on several bridges spanning the canal, so that the false work will not interfere with the opening of navigation.

STORM WARNINGS.

Prof. R. T. Fessenden, of the United States Weather Bureau, is making experiments with wireless telegraphy on the southern coast. Stations will be established at Capes Hatteras and Henry and at other coast points north of Cape Hatteras. It is the government's intention to communicate storm warnings to vessels at sea off this dangerous locality. It is also intended to send storm signals to life-saving stations when the wires are disabled. If the tests are successful the entire coast will be similarly equipped.

IT IS interesting to note the progress which is being made in the principal shipbuilding centers of Germany. There are now 17 large yards besides a number of minor ones. All the officials in these yards, and the engine shops connected with them, have been trained chiefly on the Clyde and Tyne. They speak the English language fluently, and are alive to all that is going on in the world. Kiel is the chief shipbuilding port, and has three large yards employing altogether 12,000 workmen. Stettin is next with two yards having 8,000 workers. At Wilhelmshaven, there are 7,000 men, and at Hamburg 6,000. At Danzig there are 5,000, Elbing 4,000, Flensburg 2,000, and Rostock 1,000. Altogether in the German shipbuilding yards there are employed 45,000 men. These numbers are steadily increasing. Wages for skilled workmen are 40 per cent. less than in Great Britain, and for unskilled workes 30 per cent.

NAVAL EXPENDITURE AND MERCHANT SHIPPING.

A Parliamentary return, prepared by the British Board of Trade, was issued last month, showing the aggregate expenditure on the sea-going forces of the various countries of the world, exclusive of China and the South American States, the British self-governing colonies being shown distinct from the United Kingdom. The return also shows the "aggregate revenue; aggregate tonnage of mercantile marine; annual clearances of shipping in the foreign trade; annual clearances of shipping in the coasting trade; annual value of imports by sea, including bullion and specie; and annual value of exports by sea, including bullion and specie."

The United Kingdom spent in 1898-99 £26,145,599 on her sea-going forces, against a revenue of £119,839,905, and an aggregate tonnage of the mercantile marine of 9,164,342 tons. Sea imports, including bullion and specie, stood at £530,297,069, and exports £365,025,842.

Russia spent £8,306,500 on her navy, and her revenue is given at £165,905,000; mercantile tonnage 554,141 tons, imports £34,029,000, and exports £50,401,000.

German figures are respectively £6,672,788, £76,309,000, 1,639,552 tons, £306,387,000, and £233,695,000.

France's naval expenditure is put at £13,796,033, revenue £142,021,000, mercantile tonnage 957,756 tons, imports £175,343,000, and exports by sea £153,425,000.

Japan, with a revenue of £22,017,000, spent £5,076,294 on the navy in a year, while her mercantile tonnage was 648,-324 tons, her sea imports £34,949,000 and her exports £27,-138,000

Italy spent £4,617,034 in the year ended June, 1900, and her revenue is given as £70,181,000, while her mercantile tonnage is put at 815,162. Her sea imports stand at £42,187,-000, and her exports at £30,118,000.

The Netherlands in 1899-1900 spent £1,133,664, her aggregate revenue was £10,416,000, mercantile tonnage 302,224 tons, sea imports 12,748,000 metric tons, exports 2,360,000 a metric tons.

Portugal in the year ended June, 1900, spent £749,226, her aggregate revenue was £11,474,000, mercantile tonnage 129,-522 tons, sea imports £10,250,000, sea exports £6,558,000.

Spain spent £1,133,664 in the year ended June, 1900, aggregate revenue £34,633,000, mercantile tonnage 657,924, sea imports £34,171,000, sea exports £29,491,000

The United States expended £9,840,912 in 1900; aggregate revenue £127,288,000, mercantile tonnage 848,246 tons; sea imports £154,754,000, exports £256,723,000.

ACCORDING to a press dispatch the utility of a solar motor is being demonstrated in southern California. In that State fuel is costly, while the sun shines in the southern part most of the year, the rainy season lasting but a few weeks. As described, the device consists of a funnel-shaped reflector 33½ feet in diameter at the top and tapering to 15 feet at the bottom, and containing on its surface 1,788 mirrors. This reflector is set on two focus supports in such a manner that it may follow the movement of the sun and is kept in focus by clockwork. The adjustment of the mirrors is such that the sun's rays are concentrated on a steam boiler. The engine is fed and the supply of water in the boiler is maintained automatically, and the only attention necessary to operate the machine is to adjust the mirrors to focus and set the clock in operation in the morning. The motor drives a 10-horse-power engine from an hour and a half after sunrise to within an hour of sunset, and pumps water from an underground tank at the rate of 14,000 gallons per minute. On cloudy days, of course, operations are suspended. If the experiment proves satisfactory, the device will be utilized by a number of irrigation enterprises.

CLEVELAND.

Special Correspondence to The Marine Record.

It is now considered that May 1 will be early enough to start vessels on the lakes.

Lieut. Geo. R. Clark, U. S. N., is now in charge of the branch hydrographic office at this port.

The George W. Roby and the P. P. Pratt are being fitted out at Milwaukee by non-union engineers.

The price of fuel has been fixed at $2.50 this season, being a reduction of 25 cents on last season's rates, when $2.75 was paid.

The local firm appointed to handle the fleet of the United States Steel Corporation will certainly have a busy time of it when the season gets into full swing.

Lake engineers who had made an agreement for this season's work were brought into consultation with the manager of a large line this week but to no purpose.

A quarterly dividend of 1¾ per cent., payable April 15, has been declared by the American Ship Building Co. Transfer books will be closed April 15 and reopened April 16.

Capt. C. C. Todd, U. S. N. Hydrographer, visited Cleveland on Monday, leaving the same day for Chicago. Each branch hydrographic office will be strictly inspected during his tour of the lakes.

J. C. Gilchrist has appointed Capt. James L. Weeks, for nineteen years an employe of the Gilchrist fleet, as commodore of his fleet of 46 vessels. Commodore Weeks has already assumed his new duties.

The Anchor Line, Mr. John Marron, agent, will this season be located at the old D. & C. Line dock, 23 River St., lately in use by the Northern Line. This will give the favorite and old established line better local facilities than ever it has had before, and permit a larger share of trade in the future.

The season rates that are being talked are 90 cents on ore from ports at the head of Lake Superior, and 50 cents on coal from Ohio ports to the head of the lakes. The vesselmen say that aside from a slight reduction in ore unloading charges and a cut of 25 cents a ton in the price of fuel, their operating expenses will be as high as they were last season, and that the rates named are fair.

There are a few engineers not belonging to the association fitting out boats. Men in the employ of the Minnesota Steamship Co. say that the schedule adopted by the engineers' association means a reduction in wages in many cases. Other men admit that they have no grievance. They do not want to lose their positions, nor do they want to break away from their organization. They want to see what the other fellows are going to do.

The City of Detroit steamed into the river from Detroit on Monday afternoon and opened the season of navigation for this year for the Detroit & Cleveland Navigation Co. She had on board the same crew that has manned her for the last few years, Capt. McKay being in charge. The announcement that the boats will begin running Sundays at first has been suprising to some, but it is explained by the statement that the D. & C. Line this year begins its service as a United States mail carrier between Cleveland and Michigan points.

P. L. Locklin, one of the old pioneer citizens of this city, has passed away at the age of seventy-seven years. For the last fifty-nine years of his life he lived in Cleveland, and for fifty-one years he was engaged in the business of boat building. He worked on some of the first vessels in this city, and was widely acquainted among vessel owners. He was born in Rutland, Vt., in 1824, and came to Cleveland in 1841. He was the last member of a family of five, all of whom reached the age of seventy-five years. The deceased leaves a widow and five children.

Orders have been issued by the War Department relieving Col. Samuel M. Mansfield, Corps of Engineer, U. S. A., who has been located at the port of Cleveland, from duty at this station. He is ordered to go to New York city immediately upon being relieved and will become a member of the Board of Engineers. Col. Mansfield will be succeeded here by Major D. C. Kingman, who is at present stationed at Chattanooga, Tenn. The appointment of Major Kingman to the local station revives the former precedent broken by the appointment of Col. Smith. Prior to Col. Smith all officers in charge of the Cleveland station were below the rank of colonel.

It is reported that a number of engineers representing big fleets left this week and that others will follow from day to day for the upper lake ports to take charge of their vessels. Some left for Milwaukee and Chicago. Others of the men employed will go to work on the vessels in the river. This is the first work towards fitting out for the season, and the indication is that the owners will be ready to start with the opening of the season of navigation. It is understood that some of the engineers are for backing down, while Mr. Uhler is said to hold ideas different from these and persists in a fight. This attitude caused some of the engineers to report to their owners that they would go to work when ordered.

Now that the opening of navigation on the Great Lakes is about to call for the assistance of the Bureau of Naval Hydrography, the branch hydrographic office at Cleveland, Ohio, will take on fresh activity and usefulness. The Army and Navy Journal says: The detachment from the Bureau of Navigation of Lieut. George R. Clarke, U. S. N., for duty at Cleveland, evidences the intent of the Department to render the same assistance to lake navigation in the future as it has in the past. The function of the various branch hydrographic offices on the lakes is the supplying of information on all subjects connected with charts and lighthouses, and dangers to navigation in general, to those asking for the same, and in addition to this the collector of data of all sorts on the meteorology of the lakes, with such information as to the remarkable diurnal rise and fall of these great bodies of fresh water as may be observed by shipmasters and others engaged in the commerce of these inland seas. The mass of information already collected and in process of elaboration is extensive and extremely valuable, and as the data increases so does their value grow, and in a few years it is believed that the lakes will be as well known as parts of the Atlantic Ocean.

Compared with last year there is a big difference in the condition of the opening lake trade. At this time last season practically all the season's chartering had been done, and pretty close to 18,000,000 tons of ore had been covered by season contracts. Most of the vesselmen were loaded up with coal and ore and were assured of big earnings. All questions of wages was settled and the coal, ore and vesselmen were all hustling, getting everything ready for the first of the season which promised to be profitable to all. Now just the opposite is true. Practically nothing has been done and the whole trade is unsettled and it will take some time to get matters straightened out. The ore men have not fixed prices, and the indications are that they will not get together for that purpose until it is known for certain what figure the big steel combine is going to cut in the trade. Nothing has been done about settling the engineers' strike and the popular move seems to be to delay everything as long as possible. The vesselmen are apparently satisfied with the outlook and they are all pulling for a late start. They say that a strike or general tie-up could not come at a better time. They want a short season. The only thing that is settled is the longshoremen's wages, and that has been satisfactorily arranged all along the line. No doubt but that more boats would be fitting out if the engineers would go to work, a move which they don't seem inclined to take until all of their demands are complied with, including the disruption of the Lake Carriers' Association.

The spars of a six masted schooner are named as follows: The old names of the "fore," "main" and "mizzen" are retained for the first three masts, counting from the bow. Then, according to the nomenclature to which this new kind of craft has given rise, comes the "spanker mast," followed by the "jigger mast" and finally the "driver mast." A seven masted schooner is now projected, and maritime sharks in Maine are speculating as to what they will call the extra spar, perhaps the word "chaser" might be adopted.

A retired codfish skipper started a store in Niantic. Not being very well posted in his shore reckoning, it bothered him to weigh up goods. So he would wrap up a salt codfish, a ham or a bag of sugar, "guess" the weight and hand it over. He used to say: "Well, sometimes it is a little over-weight, and sometimes it is a little under-weight; but, take it by and large, the year round, it's the fairest way to do business."

BUFFALO.

Special Correspondence to the Marine Record.

Word comes from Hamilton, Ont., that Capt. J. H. Fearman has designed and W. Johnston is building a yacht for a syndicate, to compete in the trial races for the Canada cup. All information in respect to the new yacht is refused by designer and builder.

Some lake men have been wondering why fresh water craft don't seem to be successful on the coast. One principal reason is in their outfit and chiefly so in the matter of handling cargoes. Vessels there are fitted to load and discharge, on the lakes the docks do all this for them.

The British and Foreign Marine Insurance Co. object to standing the loss on the cargo of flax seed landed ex-Elphicke. It appears that a couple of seasons ago the Elphicke was caught in a gale on Lake Erie and damaged her cargo to the extent of several thousand dollars which the underwriters claim was due to the unseaworthiness of the vessel. The case is now in court before Judge Hazel.

The older marine insurance offices are not very enthusiastic about the new Sea and Lake Co. The lake business is cut up enough already they say without the advent of a new local concern. Judging from the standpoint of an outsider it now looks as if the next diversion would be a mutual marine insurance strictly among vessel owners, in fact, it is pretty near that now, as office expenses, etc. would always have to be met.

James Carey Evans, an old resident of Buffalo, died at his home in this city this week. Mr. Evans was born in Baltimore, Md., Dec. 27, 1809. When 27 years old he went to Batavia, N. Y., and became an assistant in the land office of the late Joseph Ellicott, his great-uncle. In 1855 he engaged in the lake shipping business here and was very active in it until his retirement about 10 years ago. Mr. Evans was twice married, his first wife being Jane A. Townsend, and his second wife Harriet Tweedy Atwater, both of whom are dead. He is survived by three children, Edwin T. and Ella K. Evans and Mrs. Frank M. Hollister, all of Buffalo.

President Ryan, of the Licensed Tugmen's Protective Association, endevored to persuade the tugmen to go to work, but according to officers of the local branch of the union, they are not willing to comply with the request of their president, believing that they should maintain the original stand taken in behalf of marine engineers. The position of President Ryan is said to be a most peculiar one. He is president of the Duluth branch of the Marine Engineers' Beneficial Association there, and thus almost every movement he makes causes friction on either side. It is said that Capt. Ryan is so displeased with the position he feels he has been obliged to take that it is likely he will resign from either one organization or the other.

The Oswego Times has the following pleasant words to say of Capt. Fitch, Corps of Engineers, U. S. A. "The announcement of the removal of Capt. Graham D. Fitch from this city to Little Rock, Ark., which has been ordered, will be received with expressions of deep regret here, where he has come to be so well known and thoroughly appreciated as a skillful engineer and an accomplished gentleman. His efficient work here, in the line of duty and for the interests of Oswego harbor, has earned, as it merits, the warm thanks of this community. The relations between this community, we may add, and the officers of the army stationed here to look after the engineering needs of this important port, have invaribly been pleasant, but with none more agreeable than with Capt. Graham D. Fitch."

The steam yacht Catherine C, one of the handsomest on the lakes, has had an eventful history since she was launched at Wyandotte, Mich., in 1893. She was built for Michael Cudahy, the Chicago packer, at a cost of $32,000 and $5,000 more was spent on her during the next two years in putting in a new forced draft system and complete electrical apparatus. Some years later she was sold to Frank Conde, of Oswego, N. Y., and now she has been sold to R. Hail McCormick, of Chicago, who intends to take her down to salt water. She is to be fitted up as a salt water boat and her next port of call will be Bar Harbor, Me., where she will go into commission on June 1. The yacht is 120 feet long and 17 feet beam. Below the deck everything is finished in mahogany and the wood alone cost $11,000. The purchase price is said to be in the vicinity of $20,000.

Lewis & Crane, Seattle, Wash., wholesale dealers in lumber, fir, red cedar, spruce, ship timbers, decking, spars, etc., are shipping a large amount of stock to the Great Lakes, and have several orders now for decking, long timber, and spars for Atlantic coast points.

CHICAGO.

Special Correspondence to The Marine Record.

The Graham & Morton Transportation Co. announces that the steamer recently purchased from the Holland Line will be named Puritan, instead of Ottawa. The company is opposed to giving names of rival cities to steamers. Capt. W. A. Boswell will command her.

A. L. Parker, superintendent Santa Fe elevator, writes: We notice that elevator "A" at Galveston recently delivered to the steamer Stiklestad 103,700 bushels of wheat in four hours. Richardson & Co. delivered from Santa Fe elevator to the steamer Arthur Orr, on September 17, 120,000 bushels wheat in two hours. Come again!

The fleet to leave here this spring will only be about 60 vessels, and they will carry about six million bushels of grain, more than half of which is corn. The rate last winter was 3 cents, this winter 2½ cents and in January 2⅜ cents for spring delivery. The arrival of the early coal fleet will bring about another change in rates when they are ready to load.

Although there was a strong easterly wind blowing the current in the river on Saturday made it nearly impossible to move a boat. The Anchor Line steamer Susquehanna took three tugs to move her and they had to keep wide open or the current would carry the whole fleet up stream. It is reported that the water in the south branch was a foot lower than usual on account of the flow of the sanitary canal.

Early in September last the steamer L. C. Waldo dragged heavily over rocky bottom while tugs were taking her up the river at Buffalo to the Export elevator. As she did not leak, it was thought she had suffered little or no damage. After the steamer had been laid up for the season, however, it was found that the damage sustained was quite extensive. The Waldo is in drydock at Milwaukee for repairs. Nine bottom plates require renewal, and a large number of floor frames require re-enforcement. The work, including dock charges, will cost between $8,000 and $10,000.

Mr. J. C. Evans has been appointed general western agent of the Erie & Western Tranportation Co. (Anchor Line) taking effect April 1, 1901. In addition to the duties of the Chicago agency, Mr. Evans will, under direction of the eastern and western managers in their respective departments have general charge of the business of this company west and southwest of Chicago, furnishing on application all rates and information that may be required. His address will be No. 1 North Clark Street, Chicago, Ill. Mr. E. T. Evans is the general manager of the western division with offices at Buffalo.

It is said that the burned City of Louisville is to be rebuilt and placed on the Holland run with the Soo City. The City of Louisville was rebuilt from the steamer R. C. Reid, and was one of the best propellers on Lake Michigan. It is said that the first reports of her being totally destroyed were exaggerated and that new upper works can be built in time to start the Holland-Chicago route. The Graham & Morton Co. prepared the City of Chicago to start the season April 1. The sister ship to the Chicago, the City of Milwaukee, is practically rebuilt from the water's edge and when turned out of the hands of the finishers and decorators, will be a floating palace.

In the case of the H. W. Williams Transportation Co. against the Darius Cole Transportation Co. Judge Carr of the Van Buren circuit court of chancery at Cassopolis, has rendered a decision that the defendant must take back the Darius Cole and refund $75,000 paid on her, cancel the $50,000 note, discharge the mortgage securing the same, and pay the taxes on the boat and insurance paid by complainant amounting to $2,693. The contract was rescinded on the grounds of a breach of express warranty in that the defendants are alleged to have said that the Cole could run under suitable conditions 15 miles per hour when they sold her to the complainant company. The case will be appealed.

An elevated railroad company has been made defendant in an admiralty suit, in which damages are asked as the result of a collision between a bridge and a vessel. In the United States District Court at Chicago Percival W. Clement, receiver of the Ogdensburg Transit Co., of New York, has filed suit for $6,000 libel against the Metropolitan West Side Elevated Railway Co. This company is made defendant because of its ownership of the Metropolitan bridge, between Jackson boulevard and Van Buren street. Early in the morning of July 16, 1899, the steamer F. H. Prince, owned by the libelant company, was going south in the river. The proper signals are said to have been given on approaching the Metropolitan bridge, which is of the roller lift pattern. The bridge did not open, however, and in the collision the steamer was badly damaged. The pilot house, bridge and foremast of the boat were carried away, but the defendant company's bridge was not damaged.

The last lake transportation company to move into another state on account of taxes is the Northern Michigan line. It will move into Wisconsin, although its business will continue the same. The jump last year in the taxes on its property from $300 to nearly $1,500 is the cause. Of the distinctly Chicago lines are the Goodrich, Lake Michigan & Lake Superior, Manitou Transportation Co. and the Canada-Atlantic line. Besides the steamers belonging to these lines, there are the general carriers owned by individuals and corporations managed here, but enrolled elsewhere. In most instances practically all the stockholders reside here. By the present system of local taxation, which has driven these boats to other ports, Chicago loses annual taxes on many million dollars' worth of property. It ought in some way to be recognized that vessel property is not like a large block of real estate. A national tax for the up-keep of aids to navigation would be more justifiable than the changing state taxes which floating property has hitherto been made to pay.

DETROIT.

Special Correspondence to The Marine Record.

The Senate committee of the Michigan legislature has decided to report favorably a bill providing for a 3-cent tonnage tax on vessels. This is strictly along the lines of the Minnesota system.

It is said here that the striking engineers lost their trump card when they turned down all of the propositions made by Mr. Edwin Mills, manager of the late Carnegie fleet. It now looks as if boats are picking up engineers all along the line, and either from one source or another.

The 14 engineers in the employ of the lines represented by President Wolvin, of the Lake Carriers, who reside in Detroit and vicinity, expected that Mr. Wolvin and Joseph Hayes, the chief engineer of the line, would arrive here for a conference, but neither gentlemen showed up.

Marine Engineers' Beneficial Association No. 3, of Detroit, has just issued a neatly bound book of 80 pages, containing the roster of members in the association, addresses of members, officers and committees, and a directory of business interests affiliated with marine engineering or ship chandlery.

Small wonder that the Cole estate will appeal from the ruling of Judge Carr, wherein they are ordered to take the steamer Darius Cole back, refund her purchase price and pay other expenses besides her insurance bills. The Cole cleared a lot of money the season that she was running for the Williams Transportation Co. on Lake Michigan, and this large sum ought surely to have been taken into account in rendering an equitable settlement.

Samuel F. Hodge & Co., Riverside Iron Works, have been kept very busy on fitting out vessels. Work on the Viking, which laid up at Erie, on the Britannic at Port Huron, and the Lansing at Cleveland, has been finished, and the boats turned over to the engineers of the lines. The S. K. Martin, Linden, Byron Whitaker, Charles Hibbard and Elfinmere are here, undergoing the final touches. The Mark Hopkins at Bay City, and the W. H. Sawyer at Marine City complete the list.

Detroit will be represented in the trials for Canada cup defender honors by three yachts. It is understood that the Shaw syndicate has enough money and the details of the contract with Hanley only remain to be settled. The work of raising money for the Wilds defender has progressed so satisfactorily also that those who have the matter in charge say this boat, too, will be built. Now comes the announcement that the Detroit Boat Works is to build a boat for parties not yet announced, or as suspected, on their own account.

Manager Carter, of the D. & C. Line, thinks he requires deputy marshals to place an offender in duress when any of the boats are on the lake. There is no necessity for such special authority though, as the officer in charge of the deck has force enough to quell any disturbance between members of the crew or passengers, and to call to his aid any law-abiding citizens in the vicinity to render assistance if necessary. The millions that are ferried across the Atlantic and carried on the thousand and one other short runs are handled without the authority of a deputy United States marshal, so can the people be carried on Lakes Erie or Huron.

L. C. Waldo, one of Detroit's best known vessel owners, has returned from a two months' stay in California. Although there is as yet no stir among vesselmen on the lakes, owing to the tie up of work by the marine engineers, Mr. Waldo thought best to return to clean up a winter's accumulation of business and prepare for the season. "The statements that vessel owners are glad that the engineers have gone out and that they hope boats will be tied up until July, are probably not true," said Mr. Waldo. 'I think the vessel men regret as much as anyone that there is an issue between themselves and their men. I cannot understand as yet, why the men are making the Lake Carriers' Association an issue."

The Detroit lodge of the Licensed Tugmen's Protective Association adopted the following schedule of monthly wages. The scale is practically the same as last year: Lake tugs—Captains, $120; chief engineers, $105; mates, $75; second engineers, $75. Harbor towing tugs—Captains, $90; chief engineers, $80; mates and second engineers, when used, $75. Dredge tugs—Captains, $100; chief engineers, $90, mates and second engineers, $75. Owners wishing dredge tugs to work over twelve hours per day to be rated, captains, $120 per month; engineers, $105 per month. Dredge supply tugs, captains, $90; engineers, $80. Ice towing tugs (to do ice towing only)—Captains, $80; engineers, $70. Miscellaneous tugs (to be confined to lighter and boom towing)—Captains, $75; engineers, $65.

There is a rumor floating around that another passenger steamer will be operated this year on Lake Erie, and that she will run between Detroit and Buffalo. The boat referred to is the steamer Puritan, building at the yard of the Craig Ship Building Co., Toledo. She was ordered by the Holland & Chicago Transit Co., and during the past few days bought by the Graham & Morton line. The Puritan, which will come out in June, is 240 feet long, 40 feet beam, and 16 feet deep. She will have big power, and it is claimed that she will be a very fast boat. The report is not confirmed, but if the Puritan is put on the Detroit-Buffalo route it will probably be only for this season, and she will be taken to Lake Michigan after the Buffalo exposition is over. In 1902 the route will be covered by two large sidewheel steamers. They are now building at Detroit for the Detroit & Buffalo Steamboat Co., the principal stockholders of which are large owners in the C. & B. and D. & C. lines.

DULUTH—SUPERIOR.

Special Correspondence to the Marine Record.

There has been some inquiry for tonnage to Lake Ontario, Lake Erie and Georgian Bay. But one line, the Canada-Atlantic seems uninfluenced by the marine engineers' strike. Something in excess of 2,000,000 bushels of grain is under charter. Stocks in store aggregate 16,250,000 bushels; same date last year 19,250,000 bushels.

James Playfair, who has large interests in lumber, vessels, wrecking appliances, etc., in and around Midland, Ont., is having built at Dundee, Scotland, a steel steamer of Canadian canal dimensions. The Midland Navigation Company, now forming, will own the vessel. Her name will be Midland Queen. The equipment will be modern in all respects.

Word has reached Duluth that Hulett Merritt, of Pasadena, Cal., has sold 10,000 shares of Lake Superior Consolidated iron mines. It is said that he and his father, Louis Merritt, hold between 10,000 and 12,000 shares of this stock, which they acquitted about nine years ago. The value of 10 000 shares of this stock on a basis of yesterday's close is $1,710,000, or $171 a share. The par value of the 10,000 shares is $1,000,000. This is a clean-up that recalls the golden tales of the Klondike. The stock has increased in value nearly $1,000,000 in the past four or five weeks.

The United States steel corporation is reaching out for all the old range Bessemer ore mines, and the big company has secured the Aragon mine at Norway, which is one of the best mines in the Lake Superior district. The mine was owned by Oglebay, Norton & Co. of Cleveland. The consideration was not made public, but it is said that the firm received about $2,000,000 for the property. The United States Steel corporation will take possession before the shipping season opens. Some more figuring for mining property is being done, but as nearly all the old range Bessemer mines are now owned by the big steel corporation there is not much on the market. The combination is pretty well loaded up with non-Bessemer mines, and it is not likely that there will be much trading in property of that class.

The Inspectors of Hulls and Boilers at San Francisco, have made public their findings in the wreck of the Rio de Janeiro. Captain Ward and Pilot Jordan are censured for attempting to make port under the weather conditions prevailing at the time, and the license of Chief-Engineer Herlihy is revoked for neglect of duty.

THE MANAGEMENT OF OPEN ROWBOATS IN A SURF; BEACHING THEM, ETC.*

CHAPTER III.

BEACHING OR LANDING THROUGH A SURF.

The running before a surf or broken sea, and the beaching or landing of a boat, are two distinct operations; the management of boats as above recommended has exclusive reference to running before a surf where the shore is so flat that the broken water extends to some distance from the beach. Thus, on a very steep beach, the first heavy fall of broken water will be on the beach itself, while on some very flat shores there will be broken water as far as the eye can reach, sometimes extending to even four or five miles from the land. The outermost line of broken water, on a flat shore, where the waves break in three and four fathoms of water, is the heaviest, and therefore the most dangerous; and, when it has been passed through in safety, the danger lessens as the water shoals, until, on nearing the land, its force is spent and its power harmless. As the character of the sea is quite different on steep and flat shores, so is the customary management of boats on landing different in the two situations. On the flat shore, whether a boat be run or backed in, she is kept straight before or end on to the sea until she is fairly aground, when each surf takes her farther in as it overtakes her, aided by the crew, who will then generally jump out to lighten her, and drag her in by her sides. As above stated, sail will in this case have been previously taken in if set, and the boat will have been rowed or backed in by oars alone.

On the other hand, on the steep beach, it is the general practice, in a boat of any size, to retain speed right on to the beach, and in the act of landing, whether under oars or sail, to turn the boat bow half round toward the direction from which the surf is running, so that she may be thrown on her broadside up the beach, where abundance of help is usually at hand to haul her as quickly as possible out of the reach of the sea. In such situations, we believe, it is nowhere the practice to back a boat in stern foremost under oars, but to row in under full speed as above described.

BOARDING A WRECK OR A VESSEL, UNDER SAIL OR AT ANCHOR IN A HEAVY SEA.

The circumstances under which lifeboats or others have to board vessels, whether stranded or at anchor or under way, are so various that it would be impossible to draw up any general rule for guidance. Nearly everything must depend on the skill, judgment, and presence of mind of the coxswain or officer in charge of the boat, who will often have those qualities taxed to the utmost, as undoubtedly the operation of boarding a vessel in a heavy sea or surf is frequently one of extreme danger.

It will be scarcely necessary to state that, whenever practicable, a vessel, whether stranded or afloat, should be boarded to leeward, as the principal dangers to be guarded against must be the violent collision of the boat against the vessel, or her swamping or upsetting by the rebound of the sea, or by its irregular direction on coming in contact with the vessel's side; and the greater violence of the sea on the windward side is much more likely to cause such accidents. The danger must, of course, also be still further increased when the vessel is aground and the sea breaking over her. The chief danger to be apprehended on boarding a stranded vessel on the lee side, if broadside to the sea, is the falling of the masts; or if they have been previously carried away, the damage or destruction of the boat among the floating spars and gear alongside. It may, therefore, under such circumstances, be often necessary to take a wrecked crew into a lifeboat from the bow or stern; otherwise a rowing boat, proceeding from a lee shore to a wreck, by keeping under the vessel's lee, may use her as a breakwater, and thus go off in comparatively smooth water, or be at least shielded from the worst of the sea. This is, accordingly, the usual practice in the rowing lifeboats around the United Kingdom. The larger sailing lifeboats, chiefly on the Norfolk and Suffolk coasts, which go off to wrecks on outlying shoals, are, however, usually anchored to windward of stranded vessels, and then veered down to 100 or 150 fathoms of cable, until near enough to throw a line on board. The greatest care, under these circumstances, has, of course, to be taken to prevent actual contact between the boat and the ship, and the crew of the latter have sometimes to jump overboard and to be hauled to the boat by ropes.

In every case of boarding a wreck or a vessel at sea, it is important that the lines by which a boat is made fast to the vessel should be of sufficient length to allow of her rising or falling freely with the sea; and every rope should be kept in hand ready to cut or slip it in a moment if necessary. On wrecked persons or other passengers being taken into a boat in a seaway, they should be placed on the thwarts in equal numbers on either side, and be made to sit down. All crowding or rushing headlong into the boat should be prevented, as far as possible; and the captain of a ship, if a wreck, should be called on to remain on board to preserve order until every other person had left her.

* Reproduced from instructions published by the Royal National Life-Boat Institution of Great Britain.

APRIL ASTRONOMICAL DATA.

Astronomical data for April, 1901, furnished the MARINE RECORD by the Washburn observatory:

Mercury is the only morning star proper that is visible the present month. The planet reaches greatest elongation west April 3d, and may be seen in the eastern sky in the early part of the month at dawn. Venus is too close to the sun to be visible and passes through superior conjunction April 30th. Mars is the conspicuous planet in the evening sky and passes the meridian in the middle and early evening. It is near the bright star Regulus in the Sickle, and is distinguished readily by its ruddy color; Jupiter and Saturn form an interesting pair of planets in the morning sky. They appear high in the southeast in the early hours, the former leading the way, and are nearly south of the observer by sunrise.

The times of sunrise and sunset at Milwaukee for the month are as follows:

	SUNRISE.	SUNSET.
April 1	5:35	6:17
April 11	5:18	6:29
April 21	5:01	6:40
April 30	4:48	6:51

The times of the moon's phases are:

Full moon	April 3,	7:20 p. m.
Third quarter	April 11,	9:57 p. m.
New Moon	April 18,	3:37 p. m.
First quarter	April 25,	10:15 a. m.

The principal fixed stars visible during the month in the evening hours are:

To the west, Aldebaran, Capella, Sirius, Procyon, Castor and Pollux, and the bright stars of the constellation Orion. Near the meridian; Regulus. To the east Spica and Arcturus.

VISIBLE SUPPLY OF GRAIN.

As compiled for THE MARINE RECORD, by George F. Stone, Secretary Chicago Board of Trade.

CITIES WHERE STORED.	WHEAT. Bushels.	CORN. Bushels.	OATS. Bushels.	RYE. Bushels.	BARLEY Bushels.
Buffalo	2,006,000	.....	.....	18,000	394,000
" afloat	673,000	.....	.....	.....	.....
Chicago	11,061,000	4,921,000	3,021,000	49,000	244,000
" afloat	543,000	3,268,000	1,344,000	26,000	.....
Detroit	413,000	474,000	2,000	30,000	18,000
Duluth	9,053,000	5,156,000	1,213,000	378,000	76,000
Fort William, Ont.	1,914,000	.....	.....	.....	.....
Milwaukee	1,102,000	629,000	775,000	1,000	26,000
" afloat	.....	228,000	322,000	.....	72,000
Montreal	137,000	11,000	349,000	9,000	38,000
Port Arthur, Ont.	250,000	.....	.....	.....	.....
Toledo	882,000	1,541,000	412,000	2,000	1,000
Toronto	76,000	.....	2,000	.....	73,000
Grand Total	54,749,000	22,287,000	11,156,000	1,109,000	1,112,000
Corresponding Date, 1899	54,204,000	21,558,000	7,556,000	1,197,000	801,000
Increase	35,000	.....	221,000	.....	.....
Decrease	.....	575,000	.....	9,000	102,000

While the stock of grain at lake ports only is here given the total shows the figures for the entire country except the Pacific Slope.

FOREIGN BUILT YACHT—LYSISTRATA.

James Gordon Bennett's new steam yacht Lysistrata, designed by George L. Watson and built by W. Denny & Bros., Dumbarton, Scotland, completed her trials, and is said to have given the greatest satisfaction to her owner, designer and builders. Over an 85 knot course on the Clyde, the yacht showed a mean speed of 19½ knots and without forced draught, 16½ knots. The yacht handles admirably, has two screws and 6,500 horse-power. During her high speed trial the machinery acted faultlessly.

The Lysistrata is destined to excite much comment when she appears completed in May. She is of 2,800 tons, has a perfectly straight stem, has a storm deck fore and aft, a single, huge funnel, with one mast abaft it, and one square yard for signaling purposes. The interior arrangements are quite unique, and, generally speaking, she is quite unlike any yacht built. She has no bowsprit, but a feature at the stern and bow are large owls with electric eyes, amid a scrollwork of mistletoe. The hull has the appearance of being cut out of a single piece of metal, so highly is it polished.

WHAT THE STRANDING OF THE RIO JANEIRO TEACHES.

(COMMUNICATED.)

The Golden Gate at the entrance to San Francisco Bay, is about one mile square, its axis running nearly west-east; its north shore being marked from seaward by Point Bovinat, Point Diavola, and Lime Point; its south shore by One Mile Rock and Fort Point. There is up to 61 fathoms of water in the Gate, 21 fathoms close to One Mile Rock, on which the vessel stranded, decreasing toward Point Bovinat on the opposite side to 6½ fathoms and less. The direction of the north shore of the Gate begins seaward the 4 fathom bank in a circle, or ring around the Gate, of about 4 miles diameter, and from ½ to 1 mile in width, between 6 fathom curves, leaving near the main land two small passages, one north the other south, known respectively as the Bovinat channel and South channel.

The main channel in a southwesterly direction from the Gate is but a crossing of the bank, indicated by a straight line from a whistling buoy in 15 fathoms outside the 4 fathom bank to Lime Point light, being the course laid out in the chart for approaching the Gate, leading past One Mile Rock about ¼ mile off. On account of this close shave of the Rock, the chart course is not a safe one in thick weather, for, to make good this course requires an exact knowledge, first, of the deviation of the compass; secondly, of the course corrections for leeway and current, which vessels generally fail to ascertain, because of a lack in their equipment, and lack of training. But, even with an exact knowledge of these corrections, it would not be safe to run the chart course in thick weather without allowing a safety margin of ¼ point, on account of bad steering, the pitching and rolling of the vessel, etc. The distance of One Mile Rock from the whistling buoy in 15 fathoms is about 6 miles, therefore an error of ¼ point in course causing a sideway error of $\frac{6}{20}$ or 0.3 miles, is sufficient to bring the vessel on the Rock.

With a safety margin of ¼ point in course, a difference of nearly ½ mile is caused in the distance between the whistling buoy and the axis of the Golden Gate. Therefore, if the vessel makes good the chart course, instead of ¼ point northerly, she will find herself with the ½ mile shorter distance calculated upon, near the south shore of the Gate, close to One Mile Rock, and by changing course for the Gate, may strand on the north side of the Rock, instead of on its west side, which she tried to prevent, being all the more probable considering the difficulty of running a distance of about 6 miles by log exactly to a fraction thereof. From the preceding it is evident that it is next to impossible to keep clear of One Mile Rock in thick weather by any of the ordinary devices of navigation; and that the neglect of marking One Mile Rock by a gas and bell buoy of the Pintsch type, is the real cause of the stranding of the Rio Janeiro. For with a gas and bell buoy at the Rock, vessels on the chart course would have ample warning to avoid the Rock, and a sure means for finding the turning point into the Gate.

By means of the whistling buoy in 15 fathoms the Golden Gate may safely be entered in thick weather, without any other artificial aid to navigation, by merely using the lead and shaping courses accordingly. But the judicious use of the lead is little known to navigators, because of not being trained in it, and vessels not being equipped for it. It is therefore out of place to make the possibility of safely entering by the lead an excuse for the gross defect in the buoyage. As in a multitude of other cases, ignorance, parsimony, and an utter disregard for the safety of life and property at sea, have retarded the correction of this defect in the buoyage to the great injury of shipping.

Chicago, March 1901. JOHN MAURICE,
Civil Engineer and Nautical Expert.

MARINE PATENTS ISSUED.

Patents issued March 26, 1901. Reported especially for the MARINE RECORD. We furnish complete copies of patents at the rate of 10 cent each.

670,659. Hoisting or lowering device for Boats. S. Bergstein, New York, N. Y.

670,719. Marine Boiler Furnace. J. O. Morris, Richmond, Va., assignor to the Morris Smokeless Furnace Co., Portsmouth, Va.

670,733. Ship's Compass. W. J. Reynolds, London, England, assignor to the Envoy Patent Compass Co., same place.

670,831. Boat Lowering Device. F. Allen, Boston, and R. Danforth, Salem, assignors to the Improvement Manufacturing Co., Boston, Mass.

670,861. Ship's Course Recorder. J. Hope, Liverpool, Eng., assignor of one half to W. Buckley, same place.

WRECKING SERVICES NOT SALVAGE.

The opinion of the United States Court of Appeals in the Arthur Orr stranding case has been received by the interested parties. The case involved the amount to which the White Line Towing Co. was entitled for services in the floating of the steamer Arthur Orr and cargo in November, 1898, on the north shore of Lake Superior at Baptism river. The news that the award of the lower court had been cut down one-half was received but it was not known upon what point the reversal was made. It develops that the court of appeals finds that the White Line Towing Co. made a contract to perform services upon a basis of the same compensation as was paid other wreckers for similar service. The Inman Co., was the other wrecker upon the scene at the time.

Theodore Hollister, of Davis, Hollister & Hicks, proctors for the White Line Towing Co. said that it has not been decided what steps will be taken as yet. After consideration the case may be taken to the United States Supreme Court on a writ of certiorari for review, or the award may be accepted as it stands.

The essence of the case was the question of contract or no contract as to the compensation. Judge Lochren heard the case, and decided that no contract had been entered into by Capt. Singer. He awarded the White Line Towing Co. $10,-500. This decree was unsatisfactory both to the underwriters and the towing company. The latter appealed to the United States Court of Appeals, and a short time subsequently the underwriters authorized an appeal, and both appeals were heard jointly at St. Louis.

The decree of the United States District Court was a victory for the towing company, but under the circumstances, the decree of the United States Court of Appeals is a victory for the underwriters, even though the sum of $5,200 is more than the towing company would have received on the basis upon which Capt. Inman was paid.

Following is a synopsis of the opinion by the United States Court of Appeals:

"There are three methods of compensation for salvage services. They are, first, by a share of the salvage in cases where the services are voluntarily rendered and there is no express contract; second, by the payment of an agreed compensation in case of success only, and third, by payment at all events of an agreed compensation under a contract.

"The third is the customary method upon the Great Lakes. There is nothing strange or improbable in the contract which the owners and underwriters of the ship and cargo allege was made with the White Line Towing Co. to the effect that it would render its services for the same reasonable compensation by the day that the agent of the steamship and of its owners agreed to pay other wreckers who furnished like assistance. Such an agreement was the customary and probable contract under which such services were usually rendered at the place where, and under the circumstances in which these parties found themselves.

"When the White Line Towing Co., first appeared upon the scene the steamship was in no great extremity, in no danger of immediate destruction or loss. She had lain quietly on the shore for 36 hours and her master had already engaged Capt. Inman of the Inman Tug Line to go to Duluth for a wrecking outfit to relieve her On the afternoon of Nov. 24, 1898, Capt. Singer, manager of the White Line Towing Co., arrived at the steamship with a tug, a barge and seven men. Neither he nor his company had been requested to render any assistance. Capt. Singer tendered to the master of the Orr the services of his tug and barge and informed him that he had been directed by the underwriters to come to his aid. The master replied that he had already engaged the manager of the Inman Tug Line to go to Duluth and return with a wrecking outfit to save the ship and cargo. The going rates, rates which other wreckers were receiving, were reasonable, by the day for the tugs, barges, pumps and other apparatus used, and the testimony is convincing that it was only after Capt. Singer had agreed to accept compensation at these rates that he was permitted to assist the stranded vessel.

"These facts constituted a complete contract on the part of the owners of the vessel and cargo to pay, and the White Line Towing Co. to receive the usual compensation by the day for its services, and its recovery should be reckoned on this basis.

"The second question presented is, was the White Line Towing Co. guilty of embezzlement on a part of the cargo, or of such negligence in its care that the owners of the ship and cargo may have a deduction made from the amount owing the White Line Towing Co. for its services? The court below answers this question in the negative. It is certain a large portion of the cargo was stolen, but a majority of this court are of the opinion that the evidence that the White Line Towing Co. participated in the larceny is not so clear as to warrant a reversal of the court below on this issue.

"The conclusion reached is that the decree below must be reversed. That C. W. Elphicke and others recover their costs in this court, and that the district court be directed to enter a decree in favor of the White Line Towing Co. for $5,245.00, instead of $10,500.00, and that it recover none of its costs in the court below."

Searle & Spencer were the proctors for the underwriters.

Under the decision, the White Line Towing Co. would have been allowed compensation on a salvage basis had it not been for the finding by the court that a contract existed. The company, in addition to the award of $5,245, will receive interest on the amount, which will bring the total to about $6,000. Capt. Singer really gets considerably more than the underwriters offered to settle with him for originally.

ARCTIC AND ANTARTIC METEOROLOGICAL OBSERVERS.

The following expeditions will start for the Polar regions during 1901:

1. The Zeigler-Baldwin, to be led by Mr. Evelyn B. Baldwin, who lately resigned from the Weather Bureau for this purpose, the funds to be contributed by Mr. William Ziegler, of New York.

2. A Russian expedition, commanded by vice-Admiral Makaroff, in the Ermack, a vessel constructed to push its way through ice 14 feet thick.

3. Canadian expedition, in charge of Capt. Bernier, in the Scottish King.

4. A German expedition; plans not yet published.

5. A joint expedition by Dr. Nansen and the Duke of Abruzzi.

6. Peary and his companions will finish the exploration of Grinnell Land and return home.

7. Dr. Robert Stein and his companions will complete the exploration of Ellesmere Land.

8. A relief expedition to Franz Josef Land, under the command of Capt Stoekken, and apparently at the joint expense of Nansen and Abruzzi.

9. Baron Toll will send a party from the Kara Sea eastward along the Siberian coast.

Capt. J. E. Bernier, of Quebec, proposes to travel by the route taken by the wreck of the Jeannette, with dogs, reindeers, and sledges, over the ice from the Lena or Bennett Island region. The trip may last two and a half years.

In the Southern Hemisphere, the British and German expeditions will start in August, 1901, and divide the Antarctic regions between them; Nordenskiold for Norway and Arctowski for Belgium and the Argentine Republic; all will be in the field during the greater part of 1901-3. The network of observations "will furnish a thorough knowledge of the meteorology of all that part of the Antarctic and form a most important contribution to the study of the general atmospheric circulation."—Monthly Weather Review.

EASTERN FREIGHT REPORT.

Messrs. Funch, Edye & Co., New York, report the condition of the eastern freight market as follows:

The small volume of business transacted during the current week reflects the continued dulners in our market. Owing to the very low rates obtainable for grain charters, owners are turning their attention to business in other directions. The fixture of a steamer reported in this issue for a mixed cargo of oats and heavy grain at 1s 4½d @ 1s 10½d respectively is significant of the prevailing market conditions. Charters from the Gutf are pretty well supplied with tonnage and are not anxious to make further commitments in view of the difficulty in securing cargo on a parity with rates asked by the owners. Timber business has likewise fallen off somewhat, and in this case shippers are also not inclined to go ahead excepting at reduced figures. Time charter business is very difficult to consummate, especially for long periods, charters' and owners' views still being too far apart.

The only feature of interest in our market for sail tonnage has been the increased activity in lumber freights from the North Atlantic ports to the River Plate at well sustained figures for handy size vessels. In other directions there has scarcely been sufficient business requiring comment.

SHIPPING AND MARINE JUDICIAL DECISIONS.

(COLLABORATED SPECIALLY FOR THE MARINE RECORD.)

Negligence—Proximate Cause.—That the beam had not been properly put in at the port of clearance, did not render the shipowner liable, since the proximate cause of decedent's fall was, not that the beam was not properly put in, but that in taking the structure apart decedent stood in a place of danger, and applied an extra strain of the steam winch, which was calculated to make the structure dangerous to stand on. State of Maryland vs. Westoll et al., 106 Fed. Rep. (U. S.) 233.

Admiralty Rule.—The rule that a court of admiralty shall give or withhold damages on enlarged principles of justice and equity in an action for injuries, and is not bound to withhold damages where the party injured is himself in fault, does not authorize a judgment against a vessel for the death of a stevedore, who knowingly remained on a hatch after a beam supporting an adjoining hatch stuck while being taken out by a steam winch, and ordered additional steam applied to force out the beam. State of Maryland vs. Westoll et. al., 106 Fed. Rep. (U. S.) 233.

Constructive Acceptance of Abandonment—Trans-shipment by Insurer.—Where a marine insurer of a cargo, liable only for an absolute total loss, after a disaster to the vessel which prevented completion of the voyage, and after the salved portion of the cargo had been landed at an intermediate port, in large part uninjured, acting under the sue and labor clause of the policy, trans-shipped the same to the port of destination, its action cannot be constructed as an acceptance of abandonment, especially when it had expressly refused to accept such abandonment. Washborn & Moen Mfg. Co. vs. Relience Marine Ins. Co., 106 Fed. Rep. (U. S.) 116.

Suit for Limitation of Liability—Procedure.—Where damage claimants have answered the petition of a shipowner for limitation of liability on account of the loss of the vessel with its passengers and cargo, alleging the negligence of the vessel and the privity of petitioner thereto, the court will not enter upon the consideration of the individual claims until it has determined the questions of liabilty affecting all claimants alike, unless the petitioner admits such liability in whole or in part, and, if in part only, shows that as to the residue of claims not admitted, there can be no reasonable expectation of recovery under the law. La Bourgogne, 106 Fed. Rep. (U. S.) 232.

Master and Servant—Stevedore—Death—Libel.—Libelant's decedent, a stevedore went onto a hatch of a vessel to take out the middle fore and after beams preparatory to loading. He fastened winch chains to the middle fore and after, and ordered the winchman to proceed. The beam stuck, and decedent, without moving from his position on the adjoining hatch cover, ordered the winchman to put on more steam. The beam came out with a jump, and the fore and after beam supporting the hatch cover, on which decedent was standing slipped, and precipitated the hatch cover, with decedent, to the bottom of the hold, killing him. Held, that decedent, in remaining on the hatch cover after seeing that the fore and after stuck, was guilty of such contributory negligence, that his widow could not recover for his death. State of Maryland vs. Westoll et al., 107 Fed. Rep. (U. S.) 233.

Marine Insurance—Construction of Policy.—A policy of marine insurance contained the usual memorandum clause by which certain enumerated articles, including wire of all kinds and steel, were "warranted by the assured free from average, unless general." It also contained a rider reading: "Free of particular average, but liable for absolute total loss of a part, if amounting to 5 per cent." Held, that the memorandum clause and rider were in pari materia, and, construed together, they exempted the insurer from liability for particular average as to all articles covered by the policy, whether or not they were within the enumeration of the memorandum. Under the terms of such a policy there can be no recovery for a constructive total loss; nor can there be any claim for an absolute total loss of the entire cargo insured, where a large part of it, trans-shipped by the insurer after disaster to the vessel, reaches the port of destination in specie, and a substantial portion uninjured. Washburn & Moen Mfg. Co. vs. Reliance Marine Ins. Co., 107 Fed. Rep. (U. S.) 116.

Salvage—Evidence—Compensation.—A steamer was disabled about 14 miles from a harbor and about 4 miles from the shore, having a hole 6 by 12 inches in size, and about 6 inches above the water line, and had stopped for temporary repairs. The water was about three feet deep in her engine room, but her fires were not out and the sea was smooth. A steamer with passengers and freight towed her to a neighboring port, the time consumed being about 3½ hours, where temporary repairs were made. The repairs were of such a character as to render the vessel free from leakage, and on the next day the injured vessel was taken in tow for San Francisco, using her own steam, and arriving there 54 hours after she was first taken in tow. The value of the rescued vessel, with her cargo, was $24,000, and that of the rescuing vessel was $68,000. The rescuing vessel was detained about 14 hours. Held, that there was no risk to the salvors or the vessel employed by them, and, as the rescued vessel was not at any time in serious danger, salvage to the amount of $1,000 would be allowed. The Alice Blanchard, 106 Fed. Rep. (U. S.) 238.

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CLEVELAND, O., APRIL 4, 1901.

THERE are quite a number of items to come out of that 80 cent iron ore freight from Lake Superior.

NOT so much is heard these times about the Lake Shipmaster's Association, is that club in its days of decline, or how?

A GOOD sized tank of a galliott worked on the co-operative plan in the lake trade, might prove a lucurative investment for wage earners?

THAT presidential axe carried by George Uhler, chief of the Lake Engineers' Beneficial Association appears to be getting slightly dulled, a-la-Carrie Nation's.

NOW that all preliminaries are settled regarding the rate of wages that everyone is to be paid out of the freight earnings of a vessel, we are ready for progression to progress.

THE know-all who recently made vessels earn their first cost in one season ought to have been around a little while ago when the ownership of a bottom was offered for the price of a good sandwich.

THE National Association of Masters and Pilots organized several new lodges, or Harbors as they are called, at lake ports this winter. Whatever the rules, ritual or constitution may be, the order seems to flourish wherever it is understood.

THE Port Huron lake engineers have just got out a directory of their lodge, filled with tradesmen's advertisements, whom their solicitors expected to patronize in spending the vessel owners' money. If the owners procure the supplies themselves the engineers can't buy off the tradesmen, and so the latter is likely to feel slightly bilked to the extent of the cost of his advertisment. It is so with all of these once-a-year rosters and the vessel owner is considered fair prey even by those whom he supports in finding employment for.

IF these automatic wireless telegraphy danger machines are to ring bells on shipboard when seven miles from the breakers, there are many localites in which the bells would be ringing continually. To a fellow on the side, it appears that there is nothing in the heavens above or the earth beneath that will safely guide a large vessel through narrow waters in a thick fog, but what is known to the ordinary practice of seamen at the present day. As usual, it is just as well to remember that there has been a day to lose, or another day coming, for the past several thousand years, but a fellow can't lose the same ship twice, although he can pound her pretty hard quite often. The best ring under the circumstances is generally the ring of the anchor.

REVOCATION OF LICENSES.

There has been considerable discussion anent the revocation of lake engineers' licenses because of their present attitude regarding employment. No sooner had this absurd proposition been laid low than it again resuscitates itself in the following press dispatch from one of the largest lake ports.

"The vessel owners of this city claim that unless the striking marine engineers return to work at the opening of navigation they can bring action in the courts that will result in revoking the licenses held by the engineers. They base their contention on a precedent which they say was established in 1897 during a strike of Mississippi pilots when the Solicitor General of the United States decided that their refusal to pilot boats was a conspiracy in restraint of commerce and revoked their licenses."

We do not believe that any such action will be taken as regards the services of unemployed engineers now ashore. The bare fact, that a man holds a license issued by a branch of the Treasury Department, after passing a voluntary examination, by no means makes him a ward of the government to the extent that his goings and comings must be so ordered, and this is where an erroneous impression has been quite generally formed in lake circles, as, when off duty, a licensed officer is unknown from any other private citizen. A person may be in possession of eighteen licenses, certificates, honors, diplomas, etc., yet he exercises the same personal liberty enjoyed by other citizens while not acting under the rules of conduct, skill, talent or professional ability, voluntarily subscribed to by him in the document, form, or writing under question, and it appears ridiculous to us for parties to argue otherwise.

However, putting the foregoing on one side altogether, and, taking an individual case as follows: An unemployed, duly licensed lake engineer is ordered by an owner, his agent, or other authorized person to join a steamer and proceed to work. The engineer, master or mate would be perfectly justified and acting clearly within his rights by telling such an agent that he declined entering into any agreement relative to contracting his services for this special or any other craft at that moment, and if further remonstrated with the licensed officer might hint something about ornamenting a glass case with her for all he cared relative to the entire matter at that time.

Probably the funniest part of this revocation of license fad is that lake engineers are not refusing to work, they want to work, it is their bread and butter and lots of other things. No man refuses what he earnestly seeks for. So, if Uncle Sam is to find a ship for him, well and good; and he can, therefore, lay back till called for, stand by to never mind as it were, and keep "calashy" watch, sleeping all the time. Now, when called to duty (and here the rub comes in) he asks a few questions, pertinent or otherwise, and proclaims himself ready for immediats service, providing, etc.; these provisions being complied with no contention exists, Uncle Sam is vindicated, and the bulgine driver satisfied.

The foregoing is a plain, practical way of looking at the question from an individual standpoint. On the other hand, where a body of men combine, with the avowed purpose of contravening the law, etc., etc., possibly legal measures could be taken to bring them to the right about in short order; and we may say, that the ordinary practices in vogue in trades unions are now perfectly well understood.

THE SHIPBUILDING INDUSTRY.

The Treasury Department has issued a document on the shipbuilding industry of the United States, discussing the economic conditions which surround it in both its historical and industrial aspects. The point is made that the use of iron-clad vessels in the civil war sounded the doom of wooden ships as instruments of national defence, and thenceforth turned over the marine ascendency to the iron-producing nations, among which Great Britain held the leadership at that time. With the ascendency of the United States in iron and steel production, and the advent of this nation into the new era of oceanic responsibility, the present period of maritime progress is clearly divided from all that have preceded it. The development in the United States of shipbuilding is based upon the most favorable industrial and commercial conditions.

The influence of the naval policy on merchant shipbuilding has developed plants devoted to the construction of ships to a point of equipment with tools and machinery, and to a scale of production which with a greater demand would put the American shipbuilders on the same plane as the British builders as to cost of production. The use of electricity in the operation of shipbuilding plants, the employment of pneumatic tools, and the services of cranes and derricks in handling heavy material have revolutionized methods in the United States to such an extent that the best shipyards in America are even better equipped than those of Europe. Under existing conditions, however, distribution by sea between the Uni ed States and the outside world is in foreign control. For the fiscal year ended June 30, 1900, only 9.3 per cent. of the imports and exports to and from the United States was carried in United States vessels.

THE ERIE CANAL.

The supporters of an enlarged Erie canal were by no means pleased at the action of Gov. Odell in recommending the Seymour plan of improvements in lieu of the 1,000-ton barge canal which they had so earnestly worked for and regarded as the only adequate enlargement worthy of their best efforts. It now transpires that the Governor has assured a committee from the State Commerce Convention that, while he is not opposed to an appropriation of $26,000,000 to complete the nine-foot waterway, he will not entertain for a moment the 1,000-ton barge canal project, so that without his powerful aid in the legislature nothing more can be done than to accept the least costly line of improvements as laid out by the able body of engineers and surveyors.

This so-called minor project is, after all, a very liberal enlargement of the State waterways, when previous conditions are duly considered. The present canal boats are of 240 tons capacity. Under the Seymour plan, for which $9,000,000 was appropriated and expended (?) the capacity would have been 325 tons, while under the contemplated improvements boats of 480 tons may be used, and the lengthening of the locks permit two boats 125 feet long to lock through at the same time, thus at least doubling the capacity of the boats.

Again, the sum of $26,000,000 is quite a respectable sum of money to wring from the hands of a probably—half-reluctant legislature, even if it is that of the great, powerful and wealthy Empire State, and on the principle that the half loaf is better than no bread, it is to be hoped the best friends of waterborne traffic will center upon the successful completion of the best possible terms offered at this time.

EFFECT OF WEATHER ON COAL.

A prominent boiler insurance company, of Boston, has recently investigated the effects of weather exposure on the heating power of coal. Experiments bearing on this interesting question were made under the direction of Messrs. R. S. Hale and H. P. Williams, of Boston, along carefully planned lines. The samples that were taken under scientific investigation by recognized experts were exposed for eleven months to the many vicissitudes of the weather in New England, and then carefully compared. The results obtained demonstrated that the samples which had been so exposed to the weather lost in carbon, hydrogen and nitrogen, and, on the other hand, increased in oxygen, while the per cent. of sulphur was not changed materially. Furthermore, it was shown that the loss of calorific power of coal due to weather exposure is very slight. The loss due to firing coal in a wet condition is also very slight (about 1 per cent. if 10 per cent. moisture be added). These experiments go far to prove that the only advantage is to be gained by storing coal under cover are the lessened risk of its taking fire (although a greater risk results to the building near, if a fire starts) and the convenience of having the handlers of the coal housed from the inclemency of the weather.

ANCIENT WATERTIGHT BULKHEADS.

As showing how far back the system of subdividing vessels into watertight compartments may be traced, a correspondent sends me a book published by the Hakluyt Society in 1857 entitled "India in the Fifteenth Century," being a collection of narratives of voyages to India in the century preceding the Portuguese discovery of the Cape of Good Hope, from Latin, Persian, Russian and Italian sources, now first translated into English, and calls my attention to the following passage in the record of the travels of Nicolo Conti (early in the fifteenth century): "They (the natives of India) build some ships much larger than ours, capable of containing two thousand butts, and with five sails and as many masts. The lower part is constructed with triple planks, in order to withstand the force of the tempests, to which they are much exposed. But some ships are built in compartment, that should one part be shattered, the other portion remaining entire may accomplish the voyage."—Fairplay, London.

PRESENT CONDITION AND PROSPECTS OF THE PANAMA CANAL WORKS.*

At a meeting of the British Institution of Civil Engineers, on the 5th of February—the paper read was on "The Present Condition and Prospects of the Panama Canal Works," by Mr. J. T. Ford, M. Inst. C. E. The paper began with a few remarks as to the general importance of the subject, and expressed the hope that the facts put forward might tend to modify the somewhat unjust estimate that had been formed of the character of the distinguished originator of the Panama Canal Works, owing to the unfortunate cessation of work at the Isthmus. A short historical sketch of the work was then given, from its inception at the International Congress in Paris in 1879, down to the liquidation of the old company and the formation of the New Panama Canal Company under the auspices of the officers appointed by the French Courts.

The labors of the new company were discussed and classified under three important heads. First, the maintenance and recovery of all the plant, material and buildings on the Isthmus that could be considered valuable on a resumption of the work at a future date. Second, the formation of a Technical Commission of Engineers, to make surveys in detail, borings and meteorological observations; to determine the feasibility or otherwise of the canal under any plan of construction, and to submit to the company such plans as they would recommend for completion of the work, with full estimates, etc. Third, the prosecution of such excavation work on the canal itself, principally on the great cuts of Culebra and Emperador, as would be not only substantial progress on the work itself under any plans that might finally be adopted, but might also serve to prove the perfect possibility of those great cuts, which had been questioned with the result that doubt had arisen as to the feasibility of the whole work. Further, to carry out the deepening of the channel in the Bay of Panama, and the construction of a large steel pier at that end of the canal, so that vessels in the Pacific could come alongside, and in connection with the Panama railway (principally owned by the canal company) an improved and more economical method of handling the traffic across the Isthmus could be established, to the benefit of the canal enterprise itself during the continuance of the work of construction.

The subject of the present position of the canal works and their future prospects was dealt with under the following five headings, the conclusions therefrom being in the author's opinion generally favorable to the continuance of the work:—(1) The present condition of the works, after their practical abandonment and neglect for upwards of eight years, in its bearing on the question of the stability or permanency of such work in that particular region, in the event of the canal being completed; also, the present condition of encampments, and provision for the large number of laborers to be employed on different sections. (2) The fitness for service in the continuation of the work of the existing plant, machinery and materials generally, judging from their condition today as to state of preservation, more or less obsoleteness of pattern, etc., and the extent to which new material would be required. (3) The extent to which the investigations and published reports of the New Panama Canal Company inspired confidence in the solution of the physical and technical problems admittedly left doubtful by the old company, and the nature of the essential points that caused adverse criticism and differences of opinion among eminent engineering authorities as to the possibility or otherwise of constructing the Panama canal at all. (4) A general description of the essential features of the plans finally adopted by the International Commission of Engineers, invited by the new company to decide upon various projects after making their own independent and detailed investigations, with dimensions of the several sections of the work, etc. (5) The author's estimate of the proportion of the total work already completed, the time required for completion, and the reasons for such conclusions. It was stated that the works were in far better condition than was generally supposed, even the maritime or sea-level sections —those most exposed to tidal and flood damages—having suffered but little. Further, that while a considerable amount of new plant would be required, there remained much that was still serviceable, as had been shown by the work accomplished by the New Canal Company.

With regard to the inherent difficulties to be encountered in the construction of any canal at Panama, whether at sea-level or with locks, the author expressed the opinion that a sea-level canal, although it would be extremely costly, would be in every sense feasible, and would certainly be the ideal solution of the problem. The three main difficulties of a canal at Panama were: The question of water-supply for lockage purposes during the dry seasons; the control of the Chagres river during its flood seasons; and the nature of the material encountered at the great cuts of Culebra and Emperador. These three important questions having been thoroughly and exhaustively examined with actual experimental work under practical conditions, a favorable solution to all of them had been given by three alternative plans submitted to the company, all equally feasible, for a lock-canal with the summit-level at 126 feet, 98 feet, and 62 feet respectively above sea-level; one of these, the medium plan with summit elevation at 98 feet, was recommended.

The author strongly urged the superior advantages of the lower plan with summit level at 62 feet above sea-level in opposition to the plan recommended by the Commission. A full description was given of the route and engineering features of the plan adopted, the general lines of which were identical for all three projects, except in the important feature to which the author objected, viz., the auxilary supply canal from the storage reservoir above the Alhajuela dam to the summit-level of the canal. This feature would be eliminated with great advantage by the adoption of the 62 feet level. The author was of opinion that, assuming the canal to be completed according to the plan proposed by the Commission (and taking into account the general work done, not only in excavation proper, but in the establishment of existing conditions on the Isthmus, opening up and improving sanitary conditions, settlement of a permanent population as a nucleus for the labor supply, etc.), the effective work already accomplished on the canal fairly represented a sum of money equal to the amount still to be expended, according to the estimate of the Technical Commission, for completion, and that the canal could be completed in eight or ten years; hence one-half of the Panama canal might be considered as already completed, in spite of the admitted extravagance and errors of the old company.

The author's reasons for this conclusion were given at some length. The paper concluded with some general remarks as to the existing sanitary conditions of the Isthmus of Panama, showing great improvement in recent years, as a result of the canal work; and without entering into any comparisons with other proposed routes for a canal across the Central American Isthmus, the author was of opinion that at no place other than Panama could a canal of equal capacity and general advantages as to stability, low cost of maintenance, facility of transit and safety, and sufficiency of harbor accommodation at both ends, be completed for the same cost or within the same period of time. In an appendix to the paper, a summary of quantities and items of expense included in the £20,816,000 needed to complete the work was given.

*Extract from the published reports of the Technical Commission.

IRON ORE TRAFFIC.

Nowhere on the globe is there such a movement of cargo as from the western lake region of the United States in shipments of iron ore. In the forty five years of inauguration of the iron industry in the Lake Superior mining district 171,700,000 tons of ore have been shipped, the record of 1899 being 18,251,804 tons and that of 1900 1,000,000 gross tons in excess of the preceding year. Other fields on the north side of the lake will be opened next year, thus adding in value to what is already the wealthiest iron ore mining district in the world. According to the figures collected by the Treasury Bureau of Statistics the capital invested in this lake ore mining and transportation of the ore is estimated at nearly $300,000,000 and each year is marked by increased activity. This growth in capital has been represented during the past three months by the construction of about thirty steel steamships for the ore trade, at cost of $6,500,000 approximately, and by the erection of works at one of the upper lake ports for the trans-shipments of ore from rail to water, entailing an estimated expenditure of $5,000,000. Enormous amounts are also being invested in sinking shafts, establishing pumping plants, hoisting machines, etc., and various other mechanical and engineering devices, involving problems which demand the highest skill on the part of those having them in charge. The various steel companies interested in the shipment of these ores have fleets capable of moving from 1,000,000 to 4,500,000 tons of ore from the head of Lake Superior, and in many cases all-rail shipments are made. It is significant that the shipments for the past four years have been more than one half the sum for the preceeding forty years, being 60,000,000 tons in 1897, 1898 and 1900, while 110,000,000 tons represent the total for the forty years previous.

INDUSTRIAL ASCENDANCY.

H. F. J. Porter, of the Bethlehem Steel Company, after a review of pre-existing conditions, says: "The labor troubles, which, during the last few years, have paralyzed industry in Great Britain, granted a favorable opportunity to enter that market, which American enterprise, now ready for foreign conquest, has not been slow to seize. The attaching power of the great industrial combinations, with thousands of employes and enormous capital, directed by the master minds of a few men, would, even under ordinary circumstances, be great, but, under the favorable conditions existing in Great Britain, it has been irresistable. Ground has thus been gained by the United States, which can with difficulty be retaken by Great Britain. Only conditions which the United States themselves may invite will bring about retreat. Reckless speculation and over-confidence in a continuance of prosperity beyond the time for a natural reaction, will lead to some trade depression. Recent labor troubles in the middle west cannot be viewed without great apprehension. Knowing the effect of similar disturbances in Great Britain, unless like occurences are summarily checked, it is a foregone conclusion that American trade ascendancy, recently acquired from great Britain, will be soon restored to its recent possessor."

FRENCH DEMAND FOR SHIPS' FITTINGS.

Consul Brittain writes from Nantes, February 7, 1901:

Yesterday Mr. Edward Kerr, of 3 rue Gresset, Nantes, called at this office requesting information regarding the largest and most responsible firms in the United States engaged in the manufacture of ships' fittings, such as pumps, scuttles, engine-room steering telegraphs, steering apparatus, patent lavatories, water-closets, etc. There are extensive shipyards at Nantes and at St. Nazaire, west of this city, where quantities of these appliances are constantly being used, and if a determined effort is made by American manufacturers, I have reason to believe they will be able to procure substantial orders. Mr. Kerr is anxious to be placed at once in communication with the most extensive manufacturers. He has previously purchased these goods in England, but wishes to examine American products, and if satisfactory, will place orders in our country.

SHIPBUILDING.

According to a report to the State Department by United States Consul Sawter, at Glauchau, the shipbuilding yards of Great Britain, during 1900, turned out 1,442,471 tons of commercial vessels against 861,692 tons by all other countries combined. With warships added, the respective amounts aggregated 1,510,835 and 1,053,792. In the last three years, however, says Consul Sawter, foreign countries have doubled their output, while England has only increased 50 per cent. The United States last year led both Germany and France, the amounts of tons standing respectively 358,557, 260,751 and 165,348.

Germany turned out the largest, the Deutschland, of 16,502 tons. Four other German steamers had each a tonnage of over 10,000. England built eight big ships, four being 12,000 tons each, and the Minnehaha 13,403. France is fast increasing her sailing fleet in consequence of subsidies and makes no headway with steamers.

IRISH DEMAND FOR COAL-DISCHARGING APPARATUS.

Acting Consul-General Westacott writes from London, February 1, 1901:

I am in receipt of an inquiry for names of American firms supplying machinery and appliances for the mechanical discharge of coal from ships. Any firm wishing to communicate on this subject should address the secretary of the Londonderry port and harbor, Londonderry, Ireland.

THE ROSS Valve Co., Troy, N. Y., manufacturers of the Ross pressure regulating valve, enjoy an excellent marine patronage. The steamers of the White Star Line, North German and the Austrian Lloyds, as well as the lake-built vessels A. D. Thompson and Eureka are fitted with these well and favorably known feed-water filters. This is a filter (the Railton & Campbell patent) which shows its own work month by month and is easily as well as quickly renewed whenever found desirable to do so.

THE Roberts Boiler Co. have, within a short time, furnished seven boilers to the Osgood Dredge Co. Each one of these boilers will develop about 300 horse-power with a compound engine.

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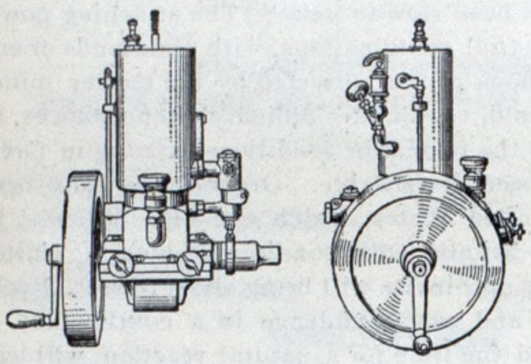

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GRAIN POOL TO BE MAINTAINED.

It has been definitely decided by the New York trunk lines managers to maintain for another year the pool on former lake grain which runs east from Buffalo. It has also been decided to begin rates much higher that they were started a year ago, the new figures, which will go into effect with the opening of navigation, being 4 cents per bushel for wheat, 3¾ cents per bushel for corn, and 3 cents per bushel for oats. It has also been decided that Frank Harriot shall continue chairman of the grain committee which is the official name of the pool. Railroad men now object to the term pool in connection with the committee, but grain men claim to know of no other name for it, since it amounts to a distribution by per centages of the entire amount of grain which is shipped east from Buffalo. The percentages established by Mr. Harriot for the new season will not, it is understood, be far from the following:

Railroad	Pr. ct.
N. Y. Central (including West Shore)	55
Erie	25
Lehigh Valley	16
Lackawanna	4

Last year grain rates at the opening of navigation were a matter of barter. The nominal rates at the opening of navigation were 3 cents per bushel for wheat, 2¾ cents for corn and 2 cents per bushel for oats. Early in the season, however, these figures were cut ¾ cent to 2¼ cents for wheat and 2 cents for corn, while the rate for oats was cut at times ⅝ cent per bushel to 1⅜ cents. There is a decided difference between these figures and 4 cents per bushel for wheat.

After the formation of the pool last year there was an immediate advance in rates, notwithstanding some very severe protests by New York receivers. In October last Mr. Harriot, without warning, announced for the railroads, that not only would the rates be advanced to the basis of 4 cents per bushel of wheat in November, but that the railroads would not contract during the latter half of October to transport any additional grain at any rate. This interfered very greatly with deliveries contracted for by several large New York receivers.

A NEW FREIGHT LINE.

Duluth will have a new freight line this season. Two large boats will run from Duluth to Sarnia, across from Port Huron, Mich., where the Grand Trunk will take and deliver the freight. This will give the Grand Trunk an entrance to the great northwest during the season of navigation.

L. C. Burgess will represent the company in the twin cities.

It is expected the Grand Trunk will make a hard fight for export grain business as it is admirably equipped with terminal elevators, etc.

AMERICAN SHIP WINDLASS COMPANY, PROVIDENCE, R. I.

(From The New York Maritime Register.)

The products of the American Ship Windlass Co., of Providence, R. I., have now become known all over the world and are considered the standard in their line everywhere. This company was the first in this country to produce an iron windlass that met with general acceptance and which rapidly superseded the old wood windlass. They were also the first to produce an iron messenger chain windlass, and also a steam windlass, and their steam windlass was for years the only steam windlass on the market, and three-fourths of the American steamers afloat to-day have the "Providence" windlasses. At the time the first ships of the new navy were built, and for long afterwards, their windlass was the only one that met the requirements of naval ships and the Navy Department. Their windlasses were put on all the ships of the new navy and the only other windlass to-day that meets with any acceptance in this country is an imitation of the "Providence" windlass, but without many of its best features.

Their hand and steam capstans are called for all over the world, and a short time ago they shipped several car loads of their windlasses and capstans to Siberia for vessels used in connection with the trans-Siberian railway. Their products go to South Africa, Russia, Australia, China, Japan, Denmark, Sweden, Great Britain, South and Central America, Mexico and Canada, and to other points. We noticed lately an account in the papers of a long list of orders for yachts and commercial vessels in Great Britain received by the American Ship Windlass Co., among which was a windlass and four capstans for a large sailing ship building at Port Glasgow, and this week they received an order for a steam windlass and steam capstan to go on a steamer building at Dundee, Scotland. They also made a capstan to be operated by horses for moving buildings, pulling yachts and other small vessels out of the water, for hoisting and other purposes.

Their patent wharf drops are so efficient and reliable and convenient that they are used exclusively on wharves all over the country. Their electric capstans, gypseys and winches find a ready sale. A short time ago they brought out an automatic towing machine, which haa achieved wonderful results and has completely changed the methods of transportation in a large section of the country. Their automatic riding windlasses for lightships in exposed positions are now being put on by the government and will soon be as popular all over the world as their towing machines. They have without question brought out more machines for use on shipboard and on wharves and drydocks than any concern in the country, their machines always having proved successful and finding a place for themselves and establishing a record as the standard in their line.

TO CONTROL THE LAKE ERIE PASSENGER TRADE.

The organization of the Detroit & Buffalo Steamship Company, in Detroit, was a step toward the complete domination of the Lake Erie passenger trade by those who are behind the Detroit & Cleveland Navigation Co. and the Cleveland & Buffalo Transit Co.

While the Detroit & Buffalo Steamship Co was not in the strictest sense a child of the old organizations, having been formed by A. McVittie, of Detroit, it is not denied in authoritative circles that the backers of the two old lines own a controlling interest in the new company, and that all three lines will make common cause against an enemy to any one of the projects. The domination of the new company by the old ones is so complete that they will even dictate the management and take care of the interests of the new boats in the terminal cities. The board of directors shows an equal representation from both the Detroit & Cleveland and the Cleveland & Buffalo companies, each having a representation of three members.

The suggestion has been made that the ultimate outcome of this latest movement is a single company operating all three lines with the other line from Cleveland to Toledo, which is already operated by the two old companies conjointly. Those in authority say that, while no step has been taken in this direction, it is a natural inference from recent occurrences. What the future is to be, however, they say is purely a guess.

THE WACOUTA--J. J. HILL'S YACHT.

The Wacouta is one of the finest yachts afloat. She was bought by Mr. Hill from W. H. Slater of St. Paul, for whom she was built in 1894. The price was $350,000. Since then Mr. Hill has gone to an additional expense of $50,000 in adding to her luxury and comfort.

Mr. Hill himself has a suite of four rooms fitted in elaborate style. There are also several handsome bachelor quarters, double sleeping apartments, a library, music room and cafe on the yacht. A bathroom is attached to each sleeping apartment. The dining room is a masterpiece of the decorator's art. On the port side are the galley and steam laundry in charge of Chinamen.

The Wacouta carries a crew of fifty-five men. She has been on many long voyages, among them a successful trip from San Francisco to New York. During the time of the Chinese-Japanese war she was cruising in the midst of the troubled waters and was within striking distance of the big naval battle.

The Wacouta before her purchase by Mr. Hill was known as the Eleanor. She is 232 feet over all and 207 feet on the water line, with a 32-foot beam. She is bark rigged. Her tonnage is 803.

NOTES.

MEXICO is to have an addition to her Navy which will more than double the fleet. The intention is to build eight gunboats, of 1,000 tons, to steam 16 knots, and two moderate-sized torpedo boats. At the present time the Mexican Navy consists of two 1,200-ton gunboats of 15 knots speed, two 450-ton vessels of 11 knots, and two smaller vessels, with five torpedo boats.

THE Russian government is about to construct a new transport, intended to serve at the same time as a training ship for stokers and engineers. The proposed vessel is to be able to stow 4 000 tons of coal, and to be of 12,000 tons displacement. Her boilers will be of four types: Schultz, Belleville, Niclausse and Yarrow, and she will have two triple expansion engines. Her estimated speed is 18 knots.

THE Japanese Government has, after some hesitation, given up the idea of using turbines as motors for its destroyers, and two of these boats have been ordered of England, with the usual motive power. These destroyers will have a displacement of 356 tons, 7,000 horse-power and 31 knots speed. They are 35 tons larger and 1,200 horse-power more powerful than those Japan had build in England last year.

THE Vickers-Maxim Company, which has bought the sole right to build Holland submarine boats outside of the United States, is constructing at Barrow-in-Furness the boats of that type mentioned in the British naval estimates. It is expected that the first boat will be launched in May. The boats will be 60 feet long and will have a speed of 10 knots on the surface and from 7 to 8 knots when submerged. Each boat will have five torpedoes and carry a crew of 7 men.

M. ROZE, of Paris, has devised a new type of airship. It consists of two huge cigar-shaped balloons placed in juxtaposition and tipped with aluminum. The car, capable of accomodating eight persons, is suspended from these aerostates. The airship is provided with two propellers, one forward and one aft, and the vessel carries a twenty horse-power gasoline motor, to develop the necessary power for driving these propellers. The trial trip will take place next month.

A WRITER in the "Bulletin of the Astronomical Society of France" concludes, after an examination of meteorological observations all over the globe, that the average annual rainfall on the various continents is as follows: South America, 66 inches; Africa, 32 inches; North America, 29 inches; Europe, 29 inches; Asia, 22 inches; and Australia 21 inches. The rain falling on the oceans is placed at these amounts: Atlantic Ocean, Mediterranean Sea, and Baltic Sea, 57,000,000 cubic meters; Pacific Ocean, 20,000,000; Indian Ocean, 18,000,000, and Arctic Ocean, 9,000,000 cubic meters. Rain and snow together fall on the whole earth to the amount of 122,000,000,000 cubic meters annually, and of this quantity 25,000,000,000 meters are delivered to the oceans by the outflow of rivers. The driest place on the earth is the village of Payta, on the coast of Peru, where seven years it the average interval between two rains.

REPORTED BY THE LOOKOUT.

In an article written for a London daily paper Mr. Charles H. Cramp, of shipbuilding fame at Philadelphia, states that American workmen "will do more and better work than the workmen of any other nationality on earth," but, he says, "they must be better fed, better clothed, and, as a consequence, better paid."

The British naval estimates for 1901-02 amount to $154,177,500, an increase of over $10,000,000, chiefly for shipbuilding. There is an increass of 3,745 in the number of officers and men. The new shipbuilding program provides for three battleships, six armored cruisers, two third-class cruisers, ten torpedo boat destroyers, five torpedo boats, two sloops of war and five submarine boats. On some of these vessels work was begun in 1900. All the ships will be in course of construction this year.

The Newport News Daily Press, in announcing the launch of the Korea, to take place next Saturday from the yards of the Newport News Shipbuilding Co., uses a three-column display heading couched in the following terms: "America's Largest Vessel Will Soon Go Overboard." Mark, the vessel is to go overboard. Well! I've heard about a joker taking the best bower anchor in his teeth and jumping overboard, or the heroic act of throwing the main deck overboard and all such little pranks as that, but how to throw the shell, or the hull itself, out of itself, is a poser. There is some way to do it if the Daily Press says so, just as a fellow lifting himself by his own boot straps, but most people would get "jammed in a clinch" trying it. Virginia, please explain yourself.

The lake-built steamer Asuncion, which has been engaged in the coasting trade from Philadelphia and other coal shipping ports to New England since she went to the coast last fall, has been chartered for the Pacific coal trade and will leave for San Francisco as soon as her cargo can be loaded. The Asuncion was built at Lorain, O., by the American Ship Building Co., in 1900, and hails from Duluth. She is 243 feet long, 42 feet beam, and 26½ feet depth of hold, and is owned by the International Steamship Co., of Minnesota. The charterers have the option to purchase her. The Asuncion will not be the first modern steamer built on the lakes to go to the Pacific. The steamships Mackinaw and Keewenaw, built by F. W. Wheeler, in West Bay City, Michigan, in 1891 went out there that year.

The Coast Seamen's Journal, San Francisco, seems to have the doings of the U. S. Steamboat Inspector's office at that port down fine. Referring to the recent loss of the steamer City of Rio de Janeiro and stating the findings of the coroner's inquest, it goes on to say: "The steamship inspectors are, of course, still to be heard from. These officials are now hearing a large volume of "evidence," consisting mainly of afterthoughts rather than statements of fact When this ceremony is concluded the inspectors will retire to reflect upon their verdict and indulge their sense of self-importance. About a month hence these worthy exponents of circumlocution will come out with something severely formal. They will "find" that the Rio was wrecked; that she was wrecked as the result of striking bottom; that this result was due to the failure of the navigating officer to keep the vessel in deep water; that so and so many lives were lost; that the vessel was worth so and so and the cargo so and so, and that the fog which prevailed at the time of the diaaster has prevented the inspectors from seeing any further into the matter. When the steamship inspectors have taken testimony they will have accomplished all that is expected of them in the circumstances; their "findings," whatever they may be, will amount to no more than a statement of the bald facts that have been public property for weeks, and might as well be filed away with the other imposing lumber of their office." It appears that the MARINE RECORD is not alone in appreciating the how-not-to-do-it policy of this arm of the Treasury Department.

"Say, stranger, is this the office of the Atlantic Steamboat Line?" Asked a typical Yank of a well-known passenger manager in Copenhagen. "Yes, sir. Can we do anything for you?" "Well, if you carry corpses, I reckon you might carry one for me across to the States; what can you fix it for?" He was told the rate, and, after remarking that "it was mighty stiff," inquired how much extra for bringing it from Paris. He was advised to see to that part of the journey himself. To this he agreed, and was then told to have the body down at the ship four days later. To this, however, he demurred. "You see, stranger, I can't reckon to guarantee that," he drawled; "guess the man in Paris is mighty bad, though he ain't dead yet. But," with enthusiasm, "if he dies in time, guess you'll have the corpse slick."

MONTREAL GRAIN ELEVATOR PROJECT.

It is understood that Mr. Tarte, the Dominion Minister of Public Works, is favorable to the offer made by Capt. Wolvin, of Detroit, to build elevators in Montreal harbor and that the necessary legislation to sanction the guarantee of the bonds for the building of the elevators will be put through at the present session of Parliament.

THE Roberts Boiler Co. recently furnished a boiler for a new revenue cutter of medium size. This makes the eighth boiler sold to the Revenue Cutter Service.

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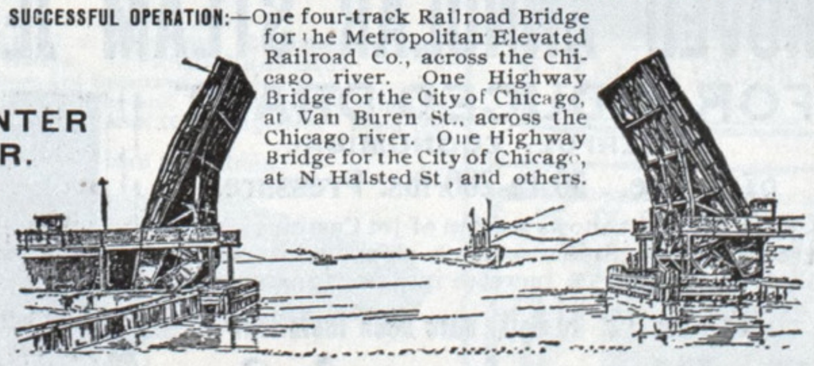
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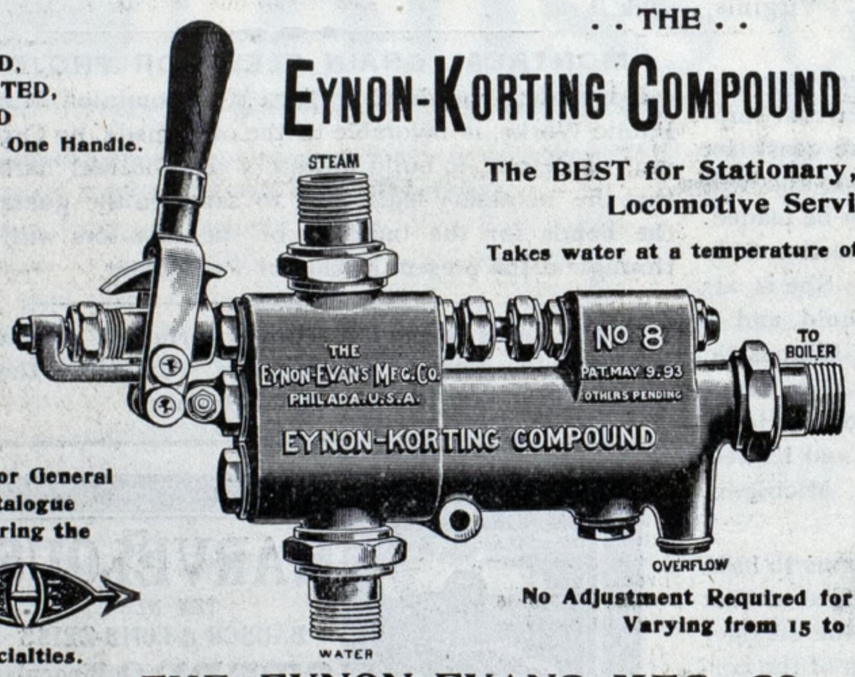

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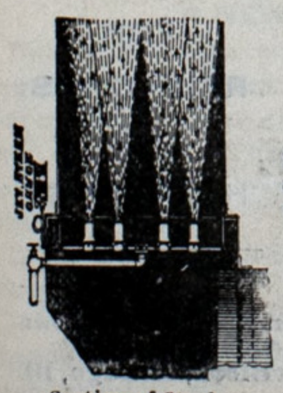

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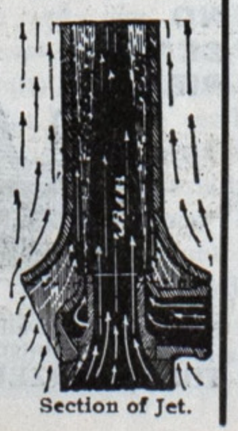

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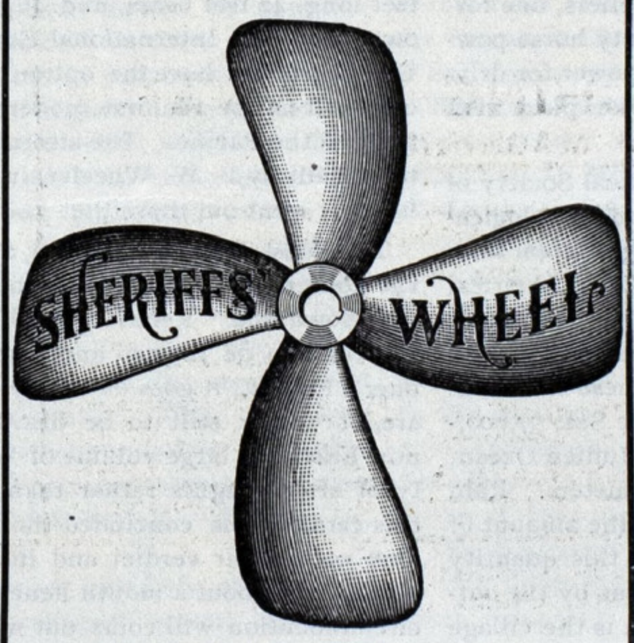

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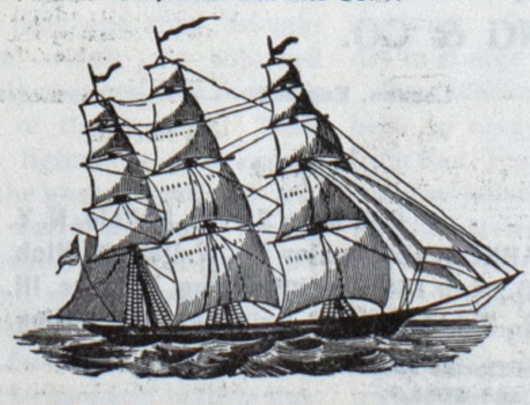

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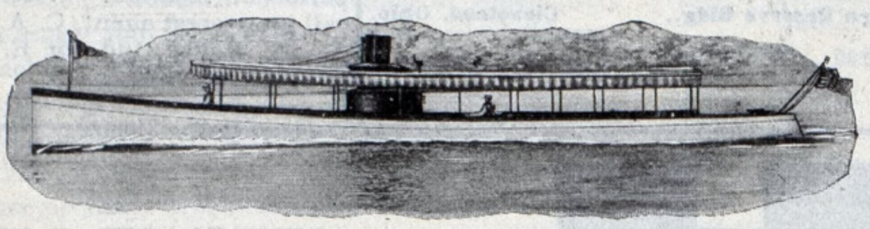

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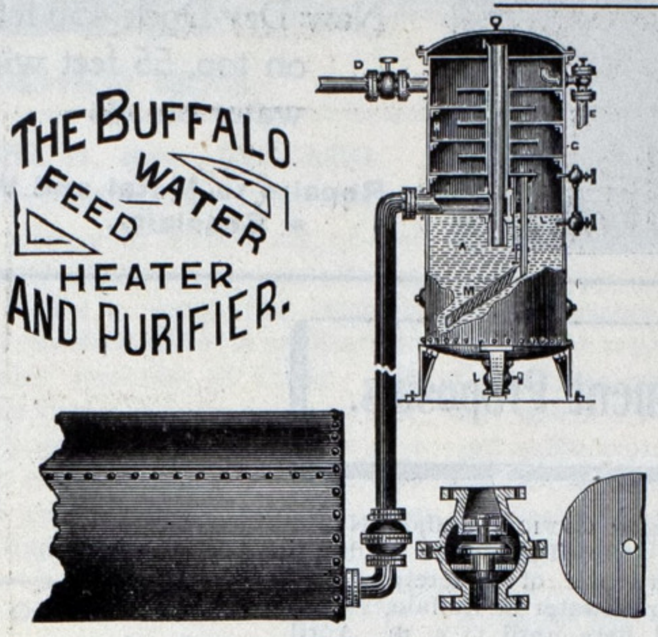

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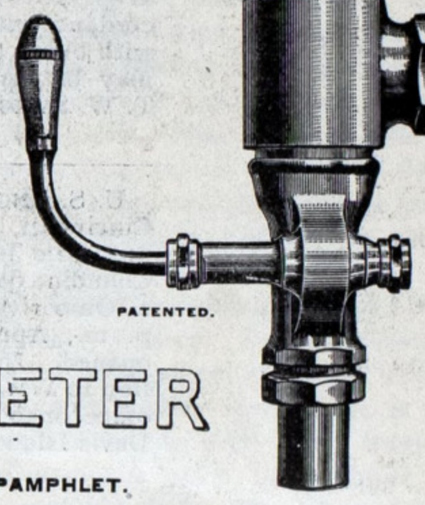

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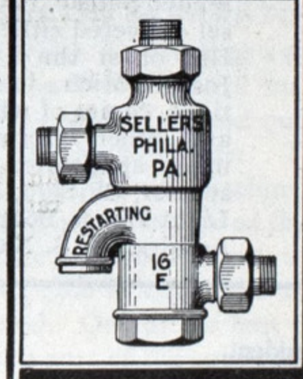

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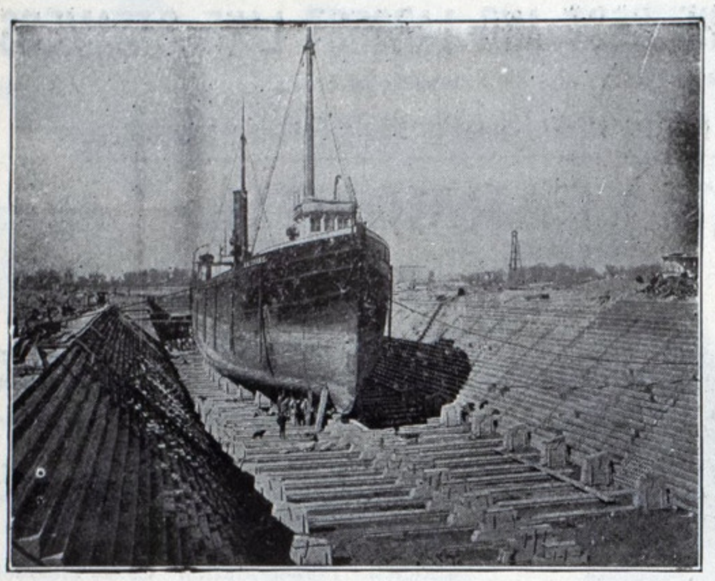

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Government Proposals.

U. S. ENGINEER OFFICE, Buffalo, N. Y., March 21, 1901. Sealed proposals in duplicate for construction of concrete superstructure on breakwater at Buffalo, N. Y., will be received here until 11 a. m., April 5, 1901, and then opened. Information furnished on application. T. W. SYMONS, Major, Engrs. 13–14

SEALED PROPOSALS will be received at the office of the Light House Engineer, Buffalo, N. Y., until 12 o'clock M., April 22, 1901, and then opened, for rebuilding the keepers' dwelling at Port Clinton, O., in accordance with specifications, copies of which, with blank proposals and other information, may be had upon application to Major T. W. SYMONS, Corps of Engineers, U. S. A. 13–14

U. S. ENGINEER OFFICE, Custom House, Cincinnati, Ohio, March 6, 1901. Sealed proposals for building 500 feet length of Chanoine dam of navigable pass at Dam No. 2, Ohio river, will be received here until 2 p. m., April 10, 1901, and then publicly opened. Information furnished on application to WM. H. BIXBY, Maj., Engrs., at this office, or to WM. MARTIN, resident engineer, Davis Island Dam, Bellevue, Pa. 10–14

SEALED PROPOSALS will be received at the office of the Light-House Board, Treasury Department, Washington, D. C., until 2 o'clock p. m., April 30, 1901, and then opened, for furnishing the materials and labor of all kinds necessary for the construction and delivery of the light-house tender Sumac, for a fixed sum for said vessel delivered either in the harbor of Chicago, Ill., or at the Light-House Depot at St. Joseph, Mich., in accordance with specifications, copies of which, with blank proposals and other information, may be obtained upon application to the Light-House Inspector, Chicago, Ill., or at the office of the Light-House Board, F. J. HIGGINSON, Rear Admiral, U. S. Navy, Chairman. 14–15

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